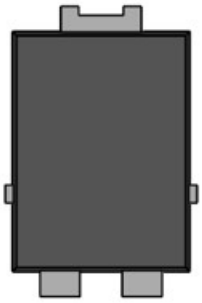
Littelfuse
Expertise Applied | Answers Delivered

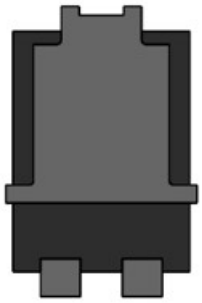
Schottky Barrier Rectifier

DST1040S-A, 10A, 40V, TO-277B, Single

DST1040S-A

AUTOMOTIVE GRADE HF RoHS e3





Description

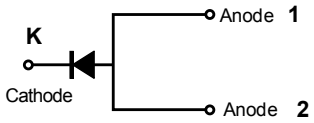
Littelfuse DST series Ultra Low V_F Schottky Barrier Rectifier is designed to meet the general requirements of automotive applications by providing high temperature, low leakage and lower V_F products.

It is suitable for high frequency switching mode power supply, free-wheeling diodes and polarity protection diodes.

Features

- Hi reliability application and automotive grade AEC-Q101 qualified
- Ultra low forward voltage drop
- High frequency operation
- MSL: Level 1 - unlimited
- High junction temperature capability
- Trench MOS Schottky technology
- Single die in TO-277B Package
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/ JEDEC J-STD-609A.01)

Pin out



Applications

- Switching mode power supply
- DC/DC converters
- Free-Wheeling diodes
- Polarity Protection Diodes

Maximum Ratings

Parameters	Symbol	Test Conditions	Max	Unit
Peak Inverse Voltage	V_{RWM}	-	40	V
Average Forward Current*	$I_{F(AV)}$	50% duty cycle @T_L =125°C rectangular wave form	10	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3 ms, half Sine pulse	150	A

* Mounted on 30 mm x 30 mm pad areas aluminum PCB

Electrical Characteristics

Parameters	Symbol	Test Conditions	Typ	Max	Unit
Forward Voltage Drop *	V_{F1}	@5A, Pulse, T_J = 25 °C	0.40	0.51	V
		@10A, Pulse, T_J = 25 °C	0.46	0.57	
	V_{F2}	@5A, Pulse, T_J = 125 °C	0.30	0.43	
		@10A, Pulse, T_J = 125 °C	0.37	0.50	
Reverse Current *	I_{R1}	@V_R = rated V_R, T_J = 25 °C	0.015	0.80	µA
	I_{R2}	@V_R = rated V_R, T_J = 125 °C	78	100	
Junction Capacitance	C_T	@V_R = 5V, T_C = 25 °C, fSIG = 1MHz	579	-	pF

* Pulse Width < 300µs, Duty Cycle <2%

Revised:07/26/22

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Thermal-Mechanical Specifications

Parameters	Symbol	Test Conditions	Max	Unit
Junction Temperature	T_J		-55 to +150	°C
Storage Temperature	T_{stg}		-55 to +150	°C
Maximum Thermal Resistance Junction to Ambient	R_{thJA}	DC operation	75	°C/W
Maximum Thermal Resistance Junction to Lead	R_{thJL}*		3.5	°C/W
Approximate Weight	wt		0.08	g
Case Style	TO-277B			

Mounted on 30 mm x 30 mm aluminum PCB; thermal resistance R_{thJL} - junction to lead
*Lead temperature monitored at the cathode pin

Figure 1: Forward Current Derating Curve

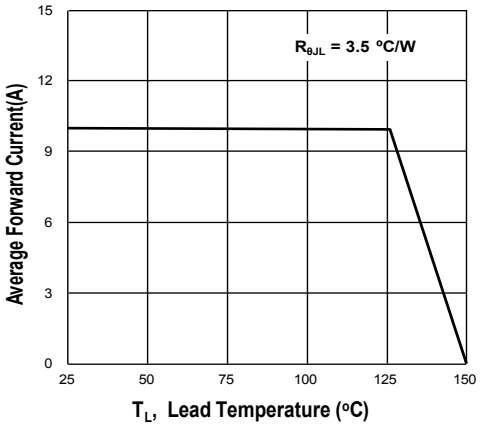

Figure 2: Forward Power Loss Characteristics

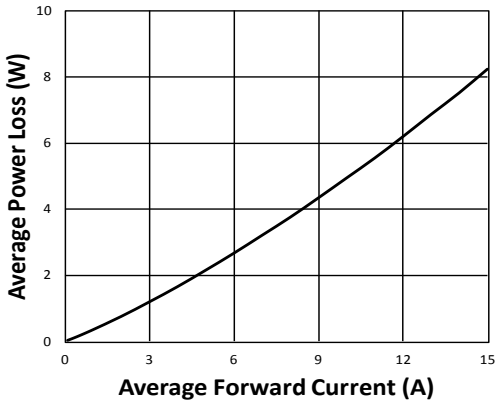

Figure 3: Typical Forward Characteristics

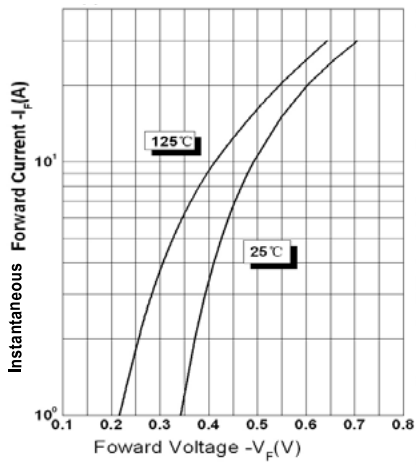

Figure 4: Typical Reverse Characteristics

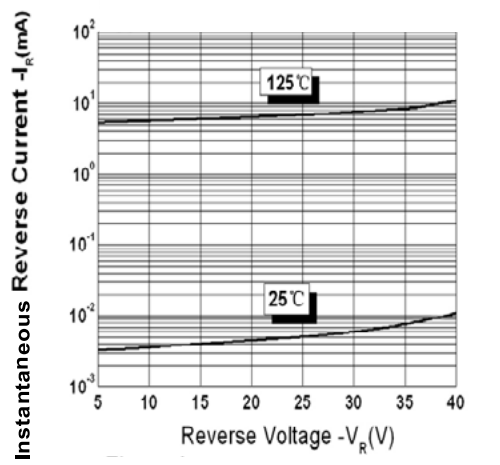

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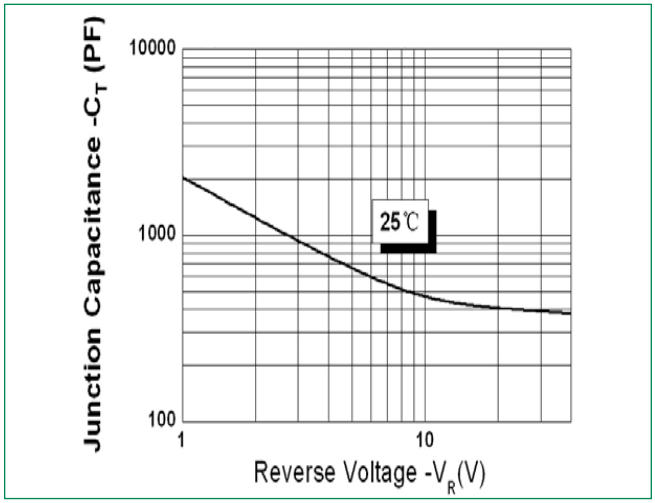
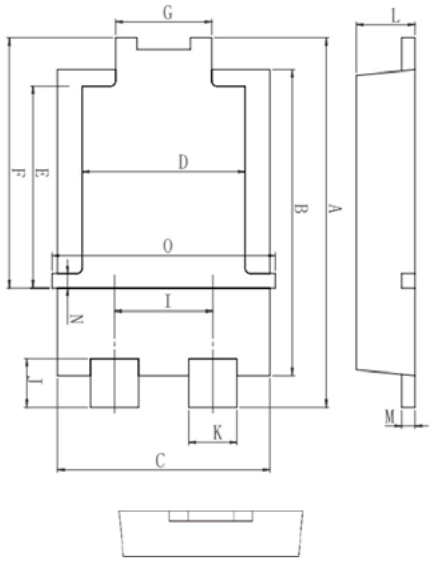
Figure 5: Typical Junction Capacitance

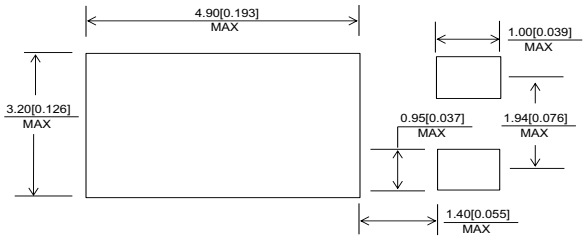


Dimensions-TO-277B



Symbol	Millimeters		
	Min	Typ	Max
A	6.30	6.50	6.70
B	5.28	5.38	5.48
C	3.88	3.98	4.08
D	2.90	3.05	3.20
E	3.40	3.55	3.70
F	4.20	4.40	4.60
G	1.70	1.80	1.90
I	1.74	1.84	1.94
J	0.65	0.85	1.05
K	0.85	0.90	0.95
L	0.95	1.10	1.25
M	0.20	0.25	0.30
N	0.25	0.40	0.55
O	4.00	4.05	4.25

Mounting Pad Layout



Part Numbering and Marking System

DST	= Device Type
10	= Forward Current (10A)
40	= Reverse Voltage (40V)
S	= Package Type
A	= AEC-Q101 qualified device
LF	= Littelfuse
YY	= Year
WW	= Week
L	= Lot Number

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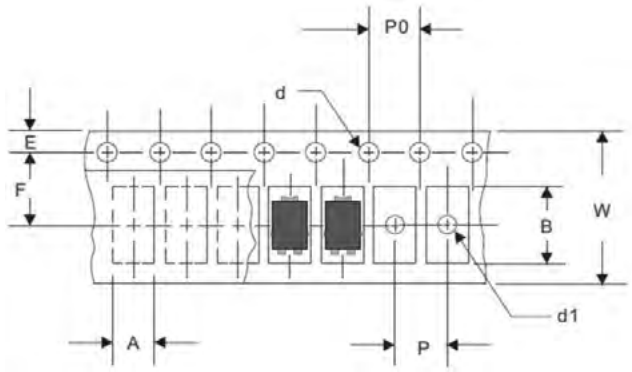
Packing Options

Part Number	Marking	Packing Mode	M.O.Q
DST1040S-A	DST1040S-A	5000pcs / Reel	5000

Carrier Tape & Reel Specification



Symbol	Millimeters	
	Min	Max
A	4.28	4.48
B	6.80	7.00
d	1.40	1.60
d1	-	1.50
E	1.65	1.85
F	5.40	5.60
P	7.90	8.10
P0	3.90	4.10
W	11.70	12.30

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